

Bellwork: 11/15/12

Convert the following to vertex form, then graph:

$$y = -2x^2 - 4x + 7$$

$$a = -2 \quad b = -4 \quad c = 7$$

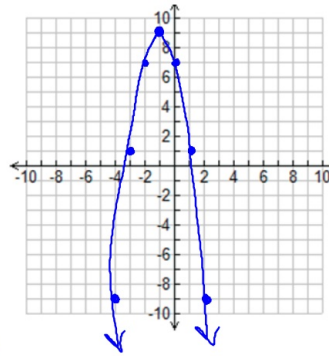
$$-\frac{b}{2a} = \frac{4}{2(-2)} = \frac{4}{-4} = -1$$

$$-2(-1)^2 - 4(-1) + 7$$

$$-2 + 4 + 7$$

$$2 + 7 = 9$$

$$y = -2(x+1)^2 + 9$$



$$y = x^2 + 6x + 8$$

$$a = 1 \quad b = 6 \quad c = 8$$

$$-\frac{b}{2a} = \frac{-6}{2(1)} = \frac{-6}{2} = -3$$

$$(-3)^2 + 6(-3) + 8$$

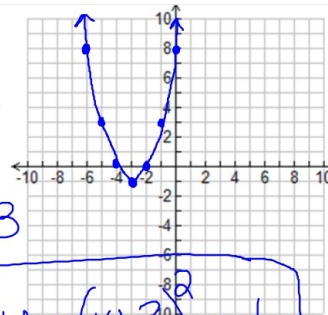
$$9 - 18 + 8$$

$$-9 + 8$$

$$-1$$

$$y = (x+3)^2 - 1$$

$$(-3, -1)$$



$$y = -x^2 + 2x + 2$$

$$a = -1 \quad b = 2 \quad c = 2$$

$$-\frac{b}{2a} = \frac{-2}{2(-1)} = \frac{-2}{-2} = 1$$

$$-1(1)^2 + 2(1) + 2$$

$$-1 + 2 + 2$$

$$1 + 2$$

$$3$$

$$y = -(x-1)^2 + 3$$

Algebra 2
Putting It All Together - NOTES

Name _____

Convert each of the following to vertex form. Graph the parabola, then complete the box.

1) $y = x^2 - 6x + 8$

$a = 1 \quad b = -6 \quad c = 8$

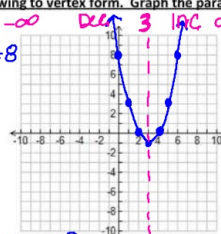
$$-\frac{b}{2a} = \frac{6}{2(1)} = \frac{6}{2} = 3$$

$$(3)^2 - 6(3) + 8$$

$$9 - 18 + 8$$

$$-9 + 8 = -1$$

Vertex form: $y = (x-3)^2 - 1$



Domain	$(-\infty, \infty)$
Range	$[-1, \infty)$
Max/Min	$(3, -1)$
Increasing	$(3, \infty)$
Decreasing	$(-\infty, 3)$
x-intercept	$(2, 0) (4, 0)$
y-intercept	$(0, 8)$

2) $y = -2x^2 + 4x + 6$

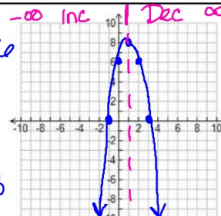
$a = -2 \quad b = 4 \quad c = 6$

$$-\frac{b}{2a} = \frac{-4}{2(-2)} = \frac{-4}{-4} = 1$$

$$-2(1)^2 + 4(1) + 6$$

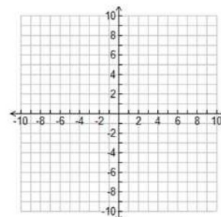
$$-2 + 4 + 6 = 8$$

Vertex form: $y = -2(x-1)^2 + 8$



Domain	$(-\infty, \infty)$
Range	$(-\infty, 8]$
Max/Min	$(1, 8)$
Increasing	$(-\infty, 1)$
Decreasing	$(1, \infty)$
x-intercept	$(-1, 0) (3, 0)$
y-intercept	$(0, 6)$

3) $y = x^2 + 6x + 11$



Vertex form: _____

Domain	_____
Range	_____
Max/Min	_____
Increasing	_____
Decreasing	_____
x-intercept	_____
y-intercept	_____

Homework:

Write equations of parabolas - all

Putting it All together - pick any
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